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Fishery Product Report

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Report Highlights:

Report highlights: Ghana is a net importer of fishery products. Post fore casts fishery imports for MY 2009 as 200,000 MT up from 191,000 MT in 2008 due to increasing demand. The major fish species that imported into Ghana are mackerel, chub mackerel, sardines/sardinella, red snappers and sea bream. Currently the US share of fish exports in the Ghanaian market is negligible. The major suppliers of fish to Ghana are the EU and countries in the Africa region namely Mauritania, Angola, Morocco and Senegal.

General Information:

PRODUCTION

Table 1. Total fish Production (wild fish catch and aquaculture in '000 MT)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008
Marine(Wild catch)	379.8	365.7	290	331	352	322.8	323.6	290.7	343.90

Inland Waters(wild)	80	87.4	87.4	86	85	81.6	81.3	81.5	87
Aquaculture	0.75	0.6	0.6	0.95	0.95	1.15	1.67	3.26	5.6
Total	460.55	453.7	378	417.95	437.95	405.55	406.57	375.46	436.6

Source: Ministry of Food and Agriculture

Ghana's fishing industry is based on the resources from the marine, inland water reservoirs and aquaculture. Fisheries in Ghana constitute an important sector in national economic development, and are estimated to contribute 3 percent of the total GDP and 5 percent of the GDP in agriculture. Ghana fish production from marine, inland reservoir and aquaculture sources has been fluctuating but generally on the decline since 2000 from 460,000 MT down to 436,000 MT in 2008 as shown in table 1. Although there is strong growth in aquaculture production, from 750 Mt in 2000 to 5,600 MT in 2008, it remains small and has not kept pace with the demand for fish in Ghana.

Production (Wild Fish Catch from marine source)

Ghana has a marine coastline of nearly 550 km and a total continental shelf area of about 24,000 square kilometers that support a marine fishing industry. The Exclusive Economic Zone (EEZ) in Ghana waters is 200 nautical miles. The marine sub-sector in Ghana is the most important source of local fish production with annual average domestic catch being 320,000 MT. The marine fisheries sub-sector delivers over 70 percent of the total fish supply in Ghana. Marine fisheries in Ghana are affected by a seasonal upwelling that occurs in its coastal waters. During upwelling periods (December/January – February and July – September) biological activity increases in the sea that result in increased production of fish food and abundance of most marine fishes. These are the fishing seasons in Ghanaian waters as the fish becomes more available for exploitation by the fishers during the upwelling seasons. However, Ghanaian fish production from the marine sources has been on the decline since 2000 from 459,000 MT down to 357,000 MT in 2008 as shown in table 1. Declining fish stocks suggest marine resources are nearing collapse due to overfishing by regional and foreign fleets. To help protect the marine environment, the government of Ghana (GOG) passed a fisheries law (Fisheries Act 625 of 2002) to curb overfishing and to help protect the marine environment.

Table 2. Total fish catch from marine sources for the period 1989-2008(1000MT)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008
Marine(Wild catch)	379.8	365.7	290	331	438	322.8	323.6	290.7	343.90

Source: Ministry of Food and Agriculture

Both pelagic (migratory fish that live and feed above ocean bottom) and demersal (sea bottom-feeding fish) fishery resources are exploited in Ghana. The most common marine resources that are fished in Ghana are the small pelagics such as mackerel, horse mackerel, chub mackerel, sardines, sardinella and anchovies. These small pelagic species account for about 70 percent of total marine fish landed in Ghana. The biomass of the small pelagic resources fluctuate significantly. For example landings of sardinella fluctuate so much so that in some years they have reached points of near collapse. The abundance of chub mackerel is so variable from year to year that it is almost impossible to predict its abundance. Similarly anchovy landings have also been fluctuating. However these fluctuations could be attributed to

phases of decline that most pelagic fishes experience worldwide which is linked to changes in the marine environment. Some shrimp were caught in shallow waters in the 1980's but the catches have never exceeded the maximum sustainable yield (MSY) of 350 MT per annum and the industry had collapsed in the last ten years.

The large pelagic type is mainly tuna and the species of commercial importance and value captured in Ghana are the yellow fin, skipjack, and big eye tunas. Tuna is the only fisheries resource that can withstand considerable expansion. Ghana is fourth biggest tuna-producing country in the world (MOFA 2006). The potential annual tuna fish resource and sustainable catch in Ghana EEZ is between 60,000MT and 80,000 MT with an average yield of 70,000 MT. This area has been given a further boost by the construction of a tuna-landing bay at the main sea port (Tema) in Ghana by the Japanese Government. The tuna processing facilities in Ghana are expanding and can handle most of the landings and meet the export requirements.

The demersal species captured in Ghana include cassava fish, red snapper, sea breams, burrito, cuttlefish, red mullet, and croaker. Estimates of the biomass of surveys show that the potential yield of the total demersal biomass on Ghana's continental shelf is between 36,000 MT and 55,000 MT per annum with an average of about 43,000 MT. (MOFA 2003)

Industry Composition of marine subsector

The marine fishing industry in Ghana consists of three main sub-sectors, namely small scale, (artisanal or canoe), semi-industrial (or inshore) and industrial sub-sectors. The artisanal sub-sector is the most important contributing 60-70 percent of total annual marine fish output of small pelagic fish species compared to industrial fleets with 30 percent.

Nearly 10,000 marine artisanal boats (canoes) many of which are wooden operate in fishing villages along the coast of Ghana (MOFA 2006). Many large canoes are motorized with 40HP outboard engines. Some canoe operators specialize in hook and line, use ice to preserve high value fish, and store fish in insulated containers. Some artisanal operators use electronic fish finding devices such as echo-sounders. There are a few smaller crafts that use sail power. Commonly used fishing gears in the artisanal sector are seine nets (purse and beach seines) set nets, draft gill nets, hook and line, cast nets and hand-lines. The artisanal fishery sub-sector exploits both small pelagic and demersal fish species.

The semi-industrial/inshore fleet consists of locally built wooden vessels 8-37m in length with in-board engines of about 400HP. The semi-industrial fleet is made up of about 350 vessels, operate from seven centers only where there are facilities for landing. Most semi-industrial vessels are dual purpose; they are able to use trawls or purse seines. The latter are more commonly used during the major and minor up-welling seasons and trawling is practiced in shallow waters during off-season. The fleet exploits both the small pelagic and demersal fish species.

Industrial vessels are large, steel-hulled foreign-built trawlers, shrimpers, tuna pole and line vessels and purse seiners. As deep-sea vessel the industrial trawlers by law are to operate in waters deeper than 30m deep (Fisheries Act 625 2002). There are about 75 industrial vessels operating in Ghana waters. The industrial fleet has freezing facility for preserving fish at sea and can stay for months at sea. It is reported that the industrial fleet have undergone radical expansion in number since 1984 when Government of Ghana policy targeted industrial fishing as a mechanism for promoting non-traditional exports. Both pelagic and demersal fishery resources are exploited by the industrial fleets. The total tuna fishing vessels are about thirty-six (36) and mainly catch three types of tuna: the yellow fin, skipjack and big eye tunas. Most tuna vessels are operated on joint-venture basis with Ghanaians having at least 50 percent shares as

required in the Fisheries Act 625 of 2002. According to the fishing industry, deep-sea shrimp has become unprofitable and most have switched to tuna fishing. The industrial vessels operate from the deep water ports in Tema and Takoradi. However, Tema Fishing Harbor is the main landing site, though Takoradi harbor also has berthing facilities for industrial vessels. The introduction of demersal pair trawling of vessels in recent times has been of great concern to the Government of Ghana (GOG) because they tend to obstruct and destroy the fishing activities of small-scale operators on the high seas.

Large-scale poaching by foreign vessels has severely depleted fish stocks in Ghana's 200-nautical-mile (370 km) maritime Exclusive Economic Zone, causing major government concern. The most affected stocks are the demersal sea bottom-feeding fish. Tuna stocks reportedly remain unaffected. The monitoring, control and surveillance of the EEZ and enforcement of the relevant fisheries laws are weak, making it difficult to assess the level of illegal fishing and thus the catch by foreign vessels.

Production (Wild Fish Catch from inland water reservoirs)

Ghana has a system of rivers, lagoons and lakes (including Lake Volta, the largest man-made lake in Africa) and fish ponds (aquaculture) that forms the basis of an inland fisheries industry. These reservoirs are the main sources of fresh water fish in Ghana. The rivers contribute significantly to the diversity and status of fish stocks in marine waters as many fish species spend part of their life cycle in these rivers. The inland sub-sector is wholly artisanal.

The average annual fish production from inland reservoirs (rivers, lakes, lagoons) is about 80,000MT. The Lake Volta is the most important inland fishery sub-sector, with surface area of about 8,480 km² (900,000ha) and 8,400km of shoreline. Lake Volta is rich in several fish species. Fish landing in the river basins, Lagoons and lakes are dominated by tilapia species, mud skipper, grey mullets, crabs, shrimps and oyster.

Table 3 Total fish catch from rivers, lakes and lagoons 1989-2008(1000MT)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008
Inland Waters(wild)	80	87.4	87.4	86	85	81.6	81.3	81.5	87

Source: Fisheries Department, MOFA

The Volta Lake contributes 70 percent of the total inland fishery production in Ghana according to the Ministry of Food and Agriculture. Fishing on the Volta Lake is done by 3-7 m planked canoes, mostly un-motorized, although outboard engines are becoming more common. The most common fishing gears are hand lines and gillnets. Total fish landings from rivers, lakes and lagoons have been relatively stable although there was a decline from 2004-2007. Annual decline in catch per unit effort is estimated at 0.255 kg/boat/day (ibid). There are currently a number of environmental concerns about the lake, including over exploitation of fishery resources, inadequate fishing methods and pollution.

Production (Aquaculture)

Aquaculture is not a new concept in Ghana but has only recently been adopted as an assured way of meeting the deficit in Ghana's fish requirements. Fish farming was introduced in Ghana as far back as 1953 but the Government of Ghana (GOG) began a massive promotion of aquaculture in early 1980 and the practice became widespread in many parts of the country. Most of these efforts have not been successful due in part to the focus on subsistence in contrast to commercial fish farming, inappropriate production practices being promoted and the dependency on government support. In addition the sector has lacked the organization to take up the challenges of providing inputs such as fingerlings and feed as viable commercial activities to support the development of the industry. The contribution of aquaculture to the national economy of Ghana has, however, not been disaggregated, so its importance is not fully recognized. Since 2000, the overall annual growth rate for fish farming in Ghana has been 16 percent (Asmah 2008).

Commercial fish farming as a major farming activity in Ghana is a recent development that has caught on in the past few years. Presently there are six commercial aquaculture farms operating in Ghana. In the last five years aquaculture production has increased from 950 MT in 2003 to 5,600 MT in 2008 as a result of proliferation of commercial fish farming especially the cage farms on the Volta Lake. There is a new aquaculture company supported by the Danish government that is expected to produce over 5,000 MT of fish in the near future. It is estimated that when all seven commercial fish farms operate to full capacity aquaculture production will double to 10,000 MT in the next few years. It has been estimated that the production from ponds and culture-based fisheries is worth about US\$ 1.5 million a year.

Tilapia is the major species farmed and constitutes over 80 percent of aquaculture production. Catfishes and others account for the remaining 20 percent. Data and general information relating to aquaculture is limited. Shrimp/prawn farming has not caught on in Ghana even though research has shown that there is a great potential for commercial farming of local shrimp species. In Ghana majority of aquaculture operators culture fish in earthen ponds either as monoculture of tilapia or poly-culture of tilapia and catfish.

Table 4. Total Aquaculture Production in Ghana 2000-2008(1000MT)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008
Aquaculture	.75	0.6	0.6	0.95	0.95	1.15	1.67	3.26	5.6

Source: Fisheries Department, MOFA

Several systems of aquaculture are found in Ghana. They vary from large-scale commercial (intensive), medium scale (semi-intensive) and subsistence or small-scale (extensive), with the latter two most commonly found.

Most large-scale commercial fish farms operate the cage culture system on the Volta Lake and some use both earthen pond as well as the cage system. Cage fish culture as a commercial enterprise on the Volta Lake was recently introduced and is being practiced by the five commercial fish culture operators in the past five years. Cage fish culture farms contribute over 80 percent of total fish yield in aquaculture production. Lake Volta has many sites that may be appropriate for cage culture and about 1 percent of the Volta Lake in Ghana has been earmarked by the Government of Ghana (GOG) for the production of fish under the cage culture systems. Cages used are either locally made or imported plastic material. Presently there are six major commercial fish farms that have been in operation in the last five years with a new one yet to start operations. Commercial farms compose about 3 percent of total aquaculture operators. Average number of cages used per farm ranges from 8-15 arranged in circular fashion with an average diameter of 15m

each. Some commercial fish farmers operate the pen type and earthen pond culture as well. The sizes of the earthen ponds in commercial farms vary and it ranges 2-9 hectares. Commercial fish farms produce only tilapia. All-male tilapia culture is becoming widespread. The commercial operators hatch, breed and produce their own fingerlings which are of good quality from concrete tanks, hapas and earthen ponds. They also sell surplus fingerlings to other fish producers. The cages/pens/ponds are stocked with 10g-30g fingerlings which are ready for the market in 6-8 months at an average weight of 250g-350g. The commercial operators undertake intensive fish farming practices and feed their fish with high quality imported pelletized balanced diets.

The majority of fish farmers are small-scale and medium-scale operators using extensive fish farming practices. In the small/medium-scale aquaculture systems farmers construct earthen ponds with unspecified dimensions (sizes vary). Earthen fish ponds in Ghana are mainly located close to wetlands, rivers or in close proximity of some other water bodies. They may also be spring-fed. They stock their ponds with tilapia fingerlings obtained from less desirable sources such as fish production ponds of colleague farmers that have not been drained for several years; these fingerlings are of very poor quality. Fish caught as fingerlings from rivers and reservoirs are either mature or of poor genetic quality and are undesirable species. Also smaller stunted tilapia in production ponds which could not be caught in the net during harvesting are also used as fingerlings. The small-scale operators produce various species of tilapia and catfish. Most small scale farmers rely wholly on the natural productivity of the ponds to achieve their production and others use agricultural by-products. To a very large extent, artificial or substandard feedstuffs are used by the medium-scale fish-farmer in unbalanced proportions to feed tilapia in earthen ponds. Fish growth is slow in this system and yields are low. Average production from the ponds of small/medium-scale operators is estimated at 2.5 tons/ha/yr .

Fish feed

Ghana does not have a feed mill that commercially produces compounded extruded or pelletized feed for cultured fish. The lack of production diets and the raw materials to produce such feeds has been a significant factor in limiting expansion. Feed requirement in the aquaculture sector is about 15,000 MT a year. Aquaculture feed is highly specialized and must be of a high quality. The fish feed must either be pelletized or extruded and must float because cultured fish feed at the top of the water. In Ghana only one company attempts to produce fish feed but it is of a substandard quality and sales are slow. Most of the commercial aquaculture operators purchase pelletized fish feed imported from Israel. The cost of the pelletized imported feed is \$2,500/ton for fingerling feed, and \$1,200/ton for continued culture feed. Fish feed is 60 percent of total cost of production of cultured fish which makes the whole venture expensive to operate.

Post discussions with FAO, Ministry of Agriculture and some of the fish farmers indicate that several options in the feed industry are being looked at to make it affordable for the industry. In the medium term importing whole compounded fish feed and importing bulk feed to be re-bagged in Ghana, seemed to be the best option. In the long term, essential feed ingredients may have to be imported and local materials to be used for producing the feed in Ghana. The long term approach requires investment for the development of infrastructure. In addition existing feed mills in Ghana could look at the possibility of investing in equipments for fish mill production. There is great potential for the manufacture of a feed mill for the aquaculture industry, in Ghana as the major inputs are readily available locally for example corn, fishmeal. Soybean meal has increasingly become a key ingredient in fish feeds and is a practical affordable ingredient in fish feed. Due to limited soybean production in West Africa, as aquaculture expands in the

region soybean meal will have to be imported to meet the demand.

There is a large and ready market for a fish feed industry in the Africa region. The Ghana Investment Promotion Centre (GIPC) is inviting animal nutrition and fish feed companies to establish a fish feed mill factory to serve the industry. This is yet to be realized. According to GIPC, the country has potential to become the West African hub for fish mill operations. There are also other numerous farms in the region that are in need of reliable supplies of fish feed. Being a member of ECOWAS, a market with a population of 250 million people, Ghana has significant potential of becoming West Africa's hub for fish mill operations.

Storage and Processing

The tuna vessels have cold storage facility for either freezing or brine freezing the tuna fish on the high seas to preserve spoilage before it is landed. About 90 percent of the tuna fish landed in Ghana are processed industrially and exported. Industrial processing of fish catch in Ghana includes filleting, canning, cutting, packaging, grading, storing, chilling and freezing. Presently Ghana has three tuna canneries operating. About 40,000MT of tuna is processed into canned tuna and tuna loins mainly for the export market. Some canned products are sold locally as well. These canneries process to internationally and EU approved standards using HACCP method to ensure sanitary and food safety conditions of the products. At present, tuna processing and preparation of fishmeal from tuna discards is the most common industrial processing activities carried out in Ghana. Only 2 percent of the finished fish products go to the Ghanaian market. About 98 percent is shipped to Europe by the company. This is because they are in partnership with an Europe-based company, even though the demand for the canned fish products is high in Ghana.

In the past few years owners of cold stores in the main ports (Tema and Takoradi) in Ghana buy, freeze and store about 90 percent of the marine fishes landed (apart from tuna) in their facilities. The cold storage method helps to reduce the high post harvest losses that occur during the major fishing seasons in July-September each year. The remaining 10 percent fish is sold fresh on the open market. Traditionally, about 60 percent of fish in Ghana is smoked, 10 percent is sundried or salted using traditional methods and the rest is fried, grilled or steamed or sold as fresh fish in the open market. The tilapia from aquaculture farms and inland reservoirs are patronized by hotels and restaurants so not much processing is done before it is marketed except for cold storage.

Resource Management/Production Policy

The fisheries industry in Ghana is regulated by the Fisheries Act, Act 625 of 2002, to consolidate with amendments of all the foregoing laws on fisheries Acts, Decrees, laws, Legislative Instruments (and other subsidiary/subordinate legislation) on or relating to the sector that are still in force. The Fisheries Act, 2002 (Act 625) is to provide for the regulation and management of fisheries; to provide for the development of the fishing industry and the sustainable exploitation of fishery resources and to provide for connected matters. Most tuna vessels are operated on joint-venture basis with Ghanaians having at least 50 percent shares as required in the Fisheries Act 625 of 2002. Imports and exports of fish are also regulated and require a permit. Imports of farmed fish have been prohibited.

All fishing vessel operators are required to obtain licenses. The law provided for a regulatory body, the Fisheries Monitoring, Control, Surveillance, and Enforcement Unit as well as a fisheries advisory council. In November 2005 the

GOG procured a vessel monitoring system to check illegal fishing in Ghana. However the monitoring, control and surveillance of the EEZ and enforcement of the relevant fisheries laws are weak, making it difficult to assess the level of illegal fishing and thus the catch by foreign vessels. As such large-scale poaching by foreign vessels is on the increase which is contributory to depletion of fish stocks in Ghana's 200-nautical-mile (370 km) maritime Exclusive Economic Zone, causing major government concern.

Aquaculture development is also governed by the Fisheries Act of 2002 (Act 625). The permits provided under the law for aquaculture operations are:

- An Environmental Impact Assessment report approved by the Environmental Protection Agency
- A permit from Water Resources Commission (WRC) to use water
- An approval from the Director of Fisheries,
- A letter of consent or a no objection to the project from the chief and people of the area (community)
- No objection from District Assembly of the area (community)
- A permit from the Volta River Authority to locate on the Volta lake to produce fish

The Food and Drugs Law, 1992, prohibits the sale of unwholesome, poisonous or adulterated and unnatural substances and lays down penalties for breaching the law.

Consumption

Fish is a preferred source of animal protein in Ghana and is consumed by the majority of the people. Ghana has a high per capita consumption of fish estimated at 25 kg compared to world average of 16 kg per capita per annum. With a population of approximately 22.6 million in 2008 fish consumption is estimated at 565,000 MT. However, fishery requirement in Ghana as estimated by FAO is 40kg per head per year. Thus the national fish requirement is over 900,000 MT annually. The increasing population is always putting pressure on the demand for fish which wild fish capture production alone is not able to meet. The national demand for fish is always greater than the country can supply and the gap is widening year after year.

In Ghana fish provides approximately 60 percent of the animal protein consumed in the diet (NFAG, 2005). About 75 percent of the total domestic production of fish is consumed locally. The most preferred fish species in Ghana is the sea bream, red snapper, croaker and cassava fish but these are expensive and unaffordable by majority of the population. Thus the affordable types namely mackerel, horse mackerel, chub mackerel, sardines and tuna are mostly consumed. The hotels and restaurants patronize the red snapper, croaker and sea bream.

Fish is often purchased either in the fresh/frozen or processed forms for use in the preparation of both exotic and local dishes by restaurants, hotels, caterers and fast food joints and for domestic use in individual homes. The processed forms include canned, smoked, salted, dried, salted and dried, fried or grilled. Even though the demand for the canned fish products is high only 2 percent is sold locally in the Ghanaian market whilst 98 percent is exported to Europe. Although fish has become expensive in the Ghana market during the last few years due to scarcity it is still the cheapest source of protein compared to meat and meat products. Fish prices are affected mostly by the quantity, quality, type and size of fish. For example the small pelagics (sardines, mackerels etc) costs GHC26.00 (\$18.5) per 10kg box; the demersal fishes, such as the red snapper, sea bream, croaker, and cassava fish cost between GHC30-60 (\$20-40) per

10kg box. The price of the small pelagics drops during the local fishing season in Ghana.

Trade

Ghana is a net importer of fishery products. Post forecasts fishery imports for Ghana in MY 2009 as 200,000 MT, up from 191,000 MT in MY 2008 due to increasing demand. Although wild capture fisheries productions in Ghana have more or less stabilized, the increasing population is always putting pressure on the demand for fish which local wild production alone is not able to meet. In addition fish is imported to partially fill the seasonal and annual deficits. The national demand for fish is always greater than the country can supply and the gap is widening year after year. Fishery requirement in Ghana as estimated by FAO is 40kg per head per year. The national fish requirement has grown from an average of 800,000 MT in 2002-2005 to approximately 900,000 MT in 2008. Fish supply including local catch and imports in the past few years have averaged 500,000 MT with an average deficit of 400,000 MT annually. It is expected that this gap will continue to remain wide for the next fifteen (15) years or more. The deficit between fish requirement and supply therefore creates an opportunity for fish imports and is also a prime motivation for the development of aquaculture and related industries. For example in 2007 Ghana imported \$260 million worth of fish to supplement domestic production, up from \$209 million in 2006 (USFAS, Ghana). Ghana's average fish imports amounts to about US\$200 million per year and Ghana imports approximately 30 percent of its fishery requirements. Imports of farmed fish, however, are prohibited.

Table 4: Total Fish Supply in Ghana ('000 MT)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total fish Prod	460.6	454.3	376.6	419	438	407	408	379	436.6
Fish exports	44.3	73	55.6	55	60	62	45	56.9	56
Imports	64	105.6	144.6	200	220	166	165.6	212	191.6
Total Fish Supply	480.3	486.3	525.3	563	598	543	528	528.6	572.2

Source: Fisheries Department, MOFA, Seafood importers

Imported seafood is shipped in brown boxed packages with weights ranging from 10 kg, 20 kg, 25 kg or 30 kg depending on the buyers' request. The number of fish per box varies with the fish sizes-small, medium, large, and ranges from 80 to 120 units.

From November to May, fishing goes through its lean season and local marine fish catch is reduced. As such the Government of Ghana (GOG) in its attempt to protect local fisheries continues to discourage fish imports by restricting the issuance of import licenses, during the major fishing seasons (MOFA and industry sources). Thus fish is only imported during the lean fishing seasons. According to the industry imported frozen fish sales are high from November to June, which is an off-season period for local marine fishing. In July to September sales of imported frozen fish is low due to active domestic marine fishing during this period. The main fish species imported into Ghana are mackerel, horse mackerel, sardines/sardinella and red snapper. Others include croaker, sea breams, red snapper but on a minimal scale.

Although Ghanaians perceive U.S. fishery products to be of a higher quality with lower export prices, high freight rates adds to the cost of U.S. supplies. According to the trade, U.S. fish exports to Ghana would be more competitive if shipments were transported in bulk ship loads (average 1,500 – 2,000 MT). The five top suppliers of fish to Ghana are Mauritania (20 percent), UK (14 percent), Poland (8 percent) and Netherlands (6 percent). Other suppliers are Morocco, Norway, the Netherlands, Belgium, Senegal, Namibia, and the Gambia.

A large number of importers/distributors have cold storage facilities located at the main fishing port in Tema near Accra. A few cold stores are in the Takoradi fishing port in the Western part of Ghana. In addition there are rented cold storage facilities in these ports and cities that are available to wholesalers/distributors with smaller capacities. About 70 percent of imported frozen fish are landed at Tema and 30 percent at the Takoradi ports from where it is distributed through internal trade channels. The trade channels include wholesalers and retailers who purchase the fish from the importers and sell in the traditional open market where most of them are located. Small quantities of dentex fish are imported for the poultry industry. Imports of farmed fish have been prohibited. Imports and exports of fish are regulated and require a permit.

The Ghana Customs Excise and Preventive Service (CEPS) is the GOG agency for import duty collection. Tariffs on all fishery (including fin fish and invertebrates) is 5 percent, Value Added Tax (VAT) 12.5 percent charged on CIF value; ECOWAS levy 0.5 percent; Export Development and Investment Fund Levy (EDIF) 0.5 percent; Inspection fee 0.1 percent; Ghana Customs Network (GCNET) charge 0.4 percent. The total tax is approximately 20.5 percent of the CIF value. The national Health Insurance Levy (NHIL) 2.5 percent has been effective since August 1, 2004. Importers pay a fish importation levy of GH¢2.00 (US\$ 1.33) per MT. The fund from the levy is paid into the Fisheries Development Fund and is used solely for the development of fisheries, including aquaculture.